TMF

December 1989

THE MAC FLYER - For Greater Safety in MAC Air Operations

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THAT OTHERS MAY LIVE

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(Back Cover: By Tommy O'Laughlin)

General Johnson's Holiday Message

As we enter the holiday season, it is a time to reflect on the past year's accomplishments and on the promises of the new year. I can think of no better description for MAC's 1989 accomplishments than, "Peace on earth, goodwill toward men."

In 1989 we flew more than 150 missions in support of the INF Treaty—an historic agreement between the super powers that has eliminated an entire class of nuclear weapons. In August a C-5 crew from Dover received the MacKay Trophy, which recognized their initial INF support mission to Semipalitinsk, USSR, as the USAF's most meritorious flight of 1988.

We also had a busy year flying humanitarian support missions: to Armenia and N'Djamena, to Charleston and Boise. In 1989 we helped restore the environment after the ravages of humanity in Valdez, Alaska; and in the Virgin Islands, we helped restore humanity after the ravages of the environment. We airlifted organs for transplant, fire fighting equipment to our national forests, and United Nations Peace Keeping Forces to the Middle East and Africa.

Every man and woman associated with the Military Airlift Command, active duty, Reserve, and Guard—blue suiters and civilians—can be proud of the humanitarian services you provided to the citizens of this nation and the world.

However, we must never forget that our primary mission is military airlift—the Backbone of Deterrence. In 1989 we continued to expand and refine our capabilities to operate successfully in hostile environments. Our aircrews concentrated on survivability through the Combat Aircrew Training Program, and our support people received realistic warfare training through VOLANT SCORPION. This program provides training primarily for our security police forces, but also serves as a training ground for PRIME BEEF units, combat photographers, Mobile Aerial Port specialists, PRIME RIBS service units and Explosive Ordnance teams.

As we enter the final decade of this century, this nation will field a leaner fighting force, one that is considerably more dependent upon the rapid and efficient transport we provide. The new year presents us with new challenges, new opportunities, and a new generation of airlifter—a weapon system that will take Military Airlift Command into the 21st Century.

Linda and I wish you and your family all the best for the new year. Let us work together to ensure that 1990 is a safe year, a prosperous year, and a year in which Military Airlift Command remains committed to peace on earth, goodwill toward men.

General Hansford T. Johnson
CINCMAC

You Know What Assume Means, Don't You?

Don't assume—Communicate!

By Maj. Gary L. Jackson
Det 3, 625 MASG
Hellenikon AB, Greece

John always had an excellent reputation in the wing, even as a new copilot. He was the stereotypical young pilot; always eager to learn and ready to perform at his peak; an aggressive kind of pilot who had progressed rapidly through the ranks of copilot and first pilot.

During his aircraft commander upgrade, John's exceptional flying skills were often praised by instructors and evaluators. His line check was flawless, as was his buddy ride which included an air refueling leg. John was on his way to the top.

After his successful completion of upgrade training, John flew several missions as a copilot. This occurred for several reasons, but primarily because of the need to give others sufficient time to upgrade to instructor. These missions were enjoyable, but he was not in command and was not called upon to make the kinds of decisions aircraft commanders often make.

A few weeks went by before it was finally John's turn to fly his first mission in command. Although stateside, the mission was an important one with high visibility potential. NASA wanted to know the feasibility of transporting the space shuttle's engines and the travel pod to Vandenberg AFB via C-5A, rather than with a Super Guppy.

Current Ops had done their job and, when the cut came down, John was ready. He carefully studied all available material on both Shuttle Landing Facilities at Cape Kennedy and Vandenberg. He was very familiar with the 21 AF Ops Policy, 22 AF Ops Policy, FLIP procedures, approaches into both bases, and both 21 and 22 AF Airfield Restrictions.

On the day of the mission, John showed at the squadron early, eager to get his first mission off on time. The briefing went without a hitch. His crew wasn't particularly experienced, but enough so that John wasn't worried. The copilot, a new arrival from ATC, did not have much experience in the C-5A, but was a pretty sharp guy, so John felt comfortable.

Departure from Travis AFB was uneventful, as was the flight to the east coast. The only unusual occurrence was when Approach Control cleared them for a visual approach into the facility. They were at 10,000 feet MSL and approximately five miles west of the field. John entered a modified downwind and prepared for landing. As he called for 'gear down,' the copilot, a little nervous about being so high, asked, "Sir, don't

1989 MAC Flight Safety Writing Contest Honorable Mention

you want to ask for a 360 to lose a little of this altitude?" John just looked at him, smiled and said, "Flaps 40 percent" and started his turn. Because John had done his homework the day before, he knew the runway was about 20,000 feet long with a 3,000-foot displaced threshold. As they rolled out on final, John called for full flaps, lowered the nose and aimed at the end of the runway. As the airspeed built, the copilot became even more fidgety and kept looking at John, who never batted an eyelash. As the huge aircraft approached the end of the runway, John merely raised the nose slightly and adjusted his aim point slightly past the displaced threshold. The airspeed began to bleed off slowly, so as the aircraft touched down at about 1,000 feet past the threshold, the airspeed was right on the marker.

Both the copilot and engineer, (who later recalled he had never had a problem falling out the front of his seat before), were favorably impressed. John, although confident in his ability, was also impressed with himself. I must have really learned something at aircraft commander school last summer, he thought.

John taxied to the ramp and parked in the shadow of the rig used to offload the shuttle from the B-747's back. NASA people seemed to be everywhere, indicating that this was, in fact, an important mission. John and his copilot were met by NASA personnel at the foot of the crew entrance ladder. The senior member introduced himself and handed them keys to two rental cars. After a short briefing on the type of load they should expect the next day, the NASA people left.

As the engineers began to refuel, John and the copilot checked the weather forecast for the departure date and reviewed the mission cut. According to the cut, the load was expected to be about 200,000 pounds and 120,000 pounds of fuel would be available at the facility upon arrival. NASA had briefed the same information so John *assumed* it to be correct.

After briefing the engineers on the transportation, John and the rest of the crew took one of the two rental cars and started downtown. Billeting had been arranged by NASA and, when they arrived in Coco Beach, they were thrilled to find the hotel was on the beach—just open the front door and step out on the sand. This was going to be a nice 30-plus-hour crewrest.

The next morning the loadmasters spent about ten hours loading the aircraft. Engines and engine pods almost completely filled the interior of the C-5. From side to side and top to bottom, all you could see were engines or pods. Oh yes, one change from the mission cut—they loaded almost 240,000 pounds instead of 200,000. The loadmasters, *assuming* the pilots were aware of it (they had discussed the loading with NASA personel the previous day), didn't bother telling them.

Of course, John and his copilot were enjoying the beach all day and didn't bother asking the loadmasters how loading went. In fact, John and the copilot were out to dinner by the time the loadmasters returned. John *assumed*, had there been any problems, the loadmasters would have left a message for him.

Alert came early the next day, or should I say in the middle of the night. It was 0100 but everyone seemed to be awake. The rental cars departed the hotel at the appointed time and the drive to the facility was very quiet.

Upon arrival at the aircraft, and after completing the bag drag, the crew went to work. The loadmasters rechecked the load and began preparing the weight and balance, the engineers began their preflight, and the pilots checked the flight instruments including the fuel gauges. They noted the fuel load was as promised, 120,000 pounds. John asked the loadmaster how much cargo he had. The answer was 240,000 lbs. John duly noted this in his notebook as he and the copilot departed the aircraft for the operations building.

They quickly checked weather along the route as well as at Vandenberg AFB. Neither pilot had been to Vandenberg, so they checked the 22 AF Airfield Restrictions and reviewed the IFR Supplement for any problem areas. Finding no apparent problems and ensuring the weather was good for their arrival, the two gallant warriors of the air went to work on the flight plan and fuel figures.

Flight planning using the CFP was easy since it was almost a straight shot across the southern U.S. to California. Next came a verification of the fuel load. Using the fuel planning manual, John looked at suitable altitudes at their standard .79 MACH, and wrote down the fuel to be consumed and the time en route. As he added the times and amounts up, he noticed something was drastically wrong—the fuel required, according to his figures, was 30,000 pounds more than he had on board. He quickly ran through the mathematics again and came up with the same number.

Obviously, Current Ops had made a mistake in their calculations or perhaps the additional 40,000 pounds of cargo had made more of an impact upon his fuel requirements than he had guessed. Oh well, no big deal. He would just go next door and tell the NASA folks he needed additional fuel.

To John's dismay, he was told

it was against Florida State law to transport jet fuel on state highways during hours of darkness. It would be at least 0600 before the fuel truck could leave Patrick AFB for the drive to the shuttle landing facility. How could he get the additional fuel required without going through the embarrassment of a delayed take-off on his first mission?—all because he had *assumed* he could get more fuel if needed.

The cogs of John's brain began to turn. On that trip to Europe last month, hadn't the aircraft commander "made" fuel when he flew at Long Range Cruise (LRC) instead of the standard .79M? Yes, it had worked then, and it might work now!

John called the aircraft. "Sergeant Williams, could you come into the flight planning room and bring your pubs. We seem to have a small problem with our fuel plan." When Sergeant Williams arrived he saw two pilots hard at work. John briefed him on the plan of attack. If they could fly at LRC and perform step climbs when able, they might have enough fuel at the 'begin descent' point to make a "legal" flight. They figured if they had 30,000 pounds at that point, they would land with sufficient fuel to be legal.

They began to work feverishly. After a few tense moments, the plan had come together rather nicely. They would plan on step climbing at every opportunity and, of course, checking their fuel after each climb. According to their calculations, this would give them the 30,000 pounds they desired at the 'begin descent' point. If at any time it appeared they would be short of this figure, they would simply divert into any suitable airfield along their intended flight path and get more fuel. They could always say the winds aloft were more severe than predicted. With this plan in mind, and the flight plan filed, the adventurous crew departed the flight planning room for the aircraft. Their day had only begun.

Engine start, taxi, and takeoff were uneventful. They were cleared to their requested altitude and proceeded on their flight planned route. Over Alabama, they requested their first step climb, which was approved. After leveling off, they computed their remaining fuel and determined they would have the desired 30,000 pounds when it was time to descend. So far, LRC was successful.

Again, over West Texas, they asked for and received another climb putting them right on schedule. Just two more steep climbs and they would be home free. Near the New Mexico-Arizona border, they requested their third climb which was granted. After level off, John instructed the copilot to begin checking destination weather. The engineer made another fuel computation and noted they would have a little more than 30,000 pounds, maybe even without another climb.

Just when it looked as though they were out of the woods, ATC called, "MAC 05, due to priority traffic you will have to vacate your present altitude. You may either climb or descend 4,000 feet; your choice." The copilot quickly responded, "Standby," and looked over to John who was talking with the engineer about the decision. The engineer only looked up and very slowly shook his head from side to side. There was no way they could climb another 4,000 feet so soon—they were still too heavy.

Now what were they going to do? They had all *assumed* they wouldn't have any trouble getting their requested altitudes. They called ATC and requested the next lower altitude. The request granted, they began their descent. As they descended, the engineer started his computations for the lower altitude. John was thinking that the extra fuel they had made so far by flying at LRC should more than cover the extra fuel now required to fly at the lower altitude.

The engineer interrupted John's thoughts with bad news. "Sir," he said, "we're only going to have about 25,000 at descent point." "Well," John replied, "that's what we wanted in the first place, so we're okay." With this bit of optimism in mind, John announced to the crew that they were pressing on to Vandenberg. The copilot, a little pessimistic, began to nonchalantly look over the en route charts for a suitable alternate, just in case.

Passing over Phoenix it looked as if they would have plenty of gas. The engineer only occasionally checked his fuel figures and even the copilot had stopped searching for alternates. The mood on the flight deck was much more relaxed than it had been throughout most of the flight. John had even relaxed somewhat, thinking he was going to escape the embarrassment of having to admit he had made a stupid mistake.

Just minutes prior to the planned descent point, ATC asked if the crew was ready to accept descent into Vandenberg. John began to respond but was interrupted by the engineer. John asked ATC to "standby." "Sir," the engineer began, "I have some bad news for you. We're burning a lot more fuel than we planned at this lower altitude. The stronger headwinds at this altitude aren't helping either." "Just how bad is it?" John asked. "Well, it's hard to say exactly, but we have less than 25,000 and if we start down

now we are going to be real low by the time we start our approach," the engineer replied.

"Should I tell Center we need to divert somewhere for fuel?" the copilot asked as he pulled the chart out again. "Definitely not!" John replied. He hadn't gone to all the trouble of fuel planning for LRC and flying extra slow across the continental U.S. to now admit he had screwed up. He decided he could delay his descent until the last minute, fly over the base VFR, and enter a modified downwind for a VFR pattern. This would save precious fuel.

He quickly performed some mental gymnastics and asked, "Hey, Co, what was the weather report on Vandenberg?"

"They said the ceiling was at 4,500 feet with seven miles visibility but there was some haze," responded the copilot.

That did it. They were going for it. John briefed the crew and called ATC to request permission to remain at their present altitude for a little while longer. ATC approved their request and asked them to call when when they were ready for their descent.

John pulled back on the throttles ever so slightly—almost an unconscious effort—to conserve his precious fuel. Slowly, they inched toward Vandenberg. The plan was firmly implanted in their brains. If ATC required them to hold or fly an unwanted approach, they would declare minimum fuel. They *assumed* declaring "emergency fuel" was out of the question since that could lead to written statements and that was unhealthy.

"We're approaching Edwards, Sir," the copilot said, "Are you ready to descend?"

"Yeah. Tell them we're ready and keep your fingers crossed," John answered.

As ATC issued the clearance, John pulled back on the throttles and began the agonizingly slow descent to pattern altitude over Vandenburg. This would require some planning so he didn't get down too soon and have to "drive in." The plan also *assumed* Vandenberg tower would let him cross over the field as planned and perform his VFR pattern.

ATC passed them over to Vandenberg approach. "Vandenberg Approach Control. This is MAC 05, descending to pattern altitude requesting permission to cross over the field and enter downwind for a VFR landing." There was a very long pause during which each crewmember, but especially John, held their breath. Finally, approach control came back, "Roger MAC 05, you are cleared as requested. Report to the tower five miles out."

The relief in the cockpit was almost visible. In another twenty minutes they would be safely on the ground and this nightmare would be over. The crew leveled off at pattern altitude five miles east of the runway on a flight path that would cross the runway at a 90-degree angle. "Vandenberg Tower," reported the copilot, "This is MAC 05, five miles to the east for a VFR pattern."

"Roger MAC 05, you are cleared for the ILS approach for Runway 18."

Panic surged throughout John's body as he exclaimed, "No way! We can't afford the fuel. Tell them we would like to fly across the active runway and enter the downwind for the VFR pattern for practice."

The copilot calmly repeated the request. The tower operator replied, "Sorry MAC 05, my mistake. You are cleared as requested. Report turning base."

John mumbled to himself, "If anything else goes wrong I may be the first C-5 aircraft commander to ditch one of these things."

As the huge aircraft taxied onto the ramp, the mood in the cockpit was very quiet. No one wanted to talk about the preceeding few hours, but everyone's thoughts were the same. What a nightmare! How did we get ourselves into such a stupid situation? Good question. How *did they* get into this type of situation?

The pilots committed an almost unpardonnable sin—they *assumed* someone else had done their work. They assumed Current Ops' fuel figures were correct since fuel available was one on the mission cut. They had assumed they could always get more fuel to top off the tanks. Even with all the preflight planning John had done, he still had missed two critical items: (1) Fuel could not be transported over Florida state highways during hours of darkness and (2) Aircraft using Vandenberg as their destination will always declare an alternate, regardless of the forecast weather.

John and the crew learned some very valuable lessons on this mission. Things could have been much different had their luck run out about the same time their fuel had. John did not let this lesson go to waste, however. He continued his upgrade to instructor pilot and anytime you were in the area during one of his preflight briefings, you could almost always hear him saying, *"NEVER ASSUME ANYTHING! ALWAYS CHECK YOURSELF!*

Maj. Jackson was commissioned through OTS in December 1972. He attended pilot training at Laredo and Craig AFBs and is a senior pilot with over 3,500 flight hours in T-33, T-37, and C-5 aircraft. In January 1986 he was assigned to Det 3, 625 MASG at Hellenikon AB and became the detachment's commander on 7 July 1988.

C.R. TERROR

Mistletoe Maneuvers—The Merry Major Makes McGuire nonstop from Athens.

"Oh, dashing 'bove the snow,
in our Lizard through the sky,
o'er the route we go,
laughing as we fly.
Bells of warning ring,
caution lights flash bright.
What fun it is to fly and sing,
the MAC theme song tonight...."

The Merry Major continued his off-key serenade over hot mike, obviously in a cheerful mood on this Christmas Eve so far away from home.

"Very nice, Boss. But why are you so happy? You know we can't get home for Christmas morning," muttered Long Suffering Sam.

"Oh, ye of little faith," responded C.R., looking somewhat scornfully at his melancholic right-seater. "Sammy m'lad, I have contacts in high places," the Airways Elf chuckled to himself, "and they're coming to help us out. You see, my friends at 21st Air Force have rerouted us from Athens direct to Goose Bay for a refueling stop, and then home to McGuire arriving at about 1100 local, just in time for a Christmas lunch. What say ye to that, m'troops?"

"Who did you kill—uh—bribe—uh? What'd ya promise the fine folks, Sir?" Sgt. Max Torque asked with a cough.

"Nothing special, engineer. It was just a simple request, simply filled. Of course, if you find us scheduled on a couple of consecutive trips to Thule in January, please don't complain," the Silver-tongued Fox added innocently.

"Sergeant Torque, how about asking transient alert to notify the fuel folks? We need this 'lifter gassed to the gills. Sergeant Downs, tell pax service to have the pax standing by for an ASAP go. Sammy, m'lad, change our routing to coast out at Cognac, France, and coast in at St. Johns, FL 390 above the NATs. Blinky, align and program the INSs, 'cause we are heading *home*!" The Magnificent Major directed his suddenly enthusiastic crew, spurting out commands, rapid-fire.

As the fast-moving crew hastily went about their appointed tasks, the right-seater challenged, "But, Boss, if we're going to Goose, shouldn't we coast in at Hopedale or Goose?"

"You are quick tonight, Sammy, and under normal conditions, that's just what we'd do. But you're aboard the 'Christmas Special.' After we coast in at Newfoundland, we'll fly airways

up to Goose," defended the Portly Pilot. Sam continued to shake his head, the innermost plan of his AC, a deep, dark, unknown secret.

As the crew completed their final preparations for launch, everything was going smoothly. In fact, all the ground folks at Athens were working like crazy to launch the Christmas ship on its evening voyage.

"Line-up checklist," called C.R. as the Starlifter made its turn onto the runway for a reduced-EPR takeoff. "This'll be a normal climb tonight lads, as we'll be adhering to all Dash One rules, ya know." Sammy was relieved to hear this, since they hadn't quite gotten around to them in the last several missions. In the clear, cool, starlit Athenian night, the Starlifter leapt into the sky, winging its way homeward bound with some of MAC's finest aboard—excluding, of course, the Major.

"Engineer, pilot. Can we make FL 390 yet?" asked the Ace of Aerospace, reaching into his evening snack for a PB and J. "You can't get better peanut butter than from the inflight kitchen at Athens," he remarked, grape jelly dripping from his hand.

"Negatory, Boss. Not for another 45 minutes," answered Sergeant Torque.

"Well, we'll stop our climb at FL 350 for now, accelerating to Mach .77," C.R. announced.

"Isn't that a little fast, Boss, even for the Christmas Special?" hinted the able right-seater.

"Gadzooks! Too many questions, Sammy. We've got an ETA to make, er, I mean a block time to meet. Besides, at these higher gross weights, it's more fuel efficient to fly faster. Of course, we'll slow down slightly before we're overhead destination. Now, please pass up the chile-con-carnage and some Pang citrus drink," C.R. continued, having just wolfed down the peanut butter and jelly sandwich. "I've developed a taste for freeze-dried citrus recently, but I can't seem to remember where I picked it up."

"I remember, Boss, but I'm glad you've forgotten," answered Sammy, remembering an ill-fated Shuttle flight almost a year ago.

After consuming the Pang, chili-con-carnage, and a couple of Flicker candy bars, the Somnambulistic Skipper eased into the bunk and slipped off into dream-

land, mumbling something about keeping one's blood sugar up.

"Boss, wake up. We're nearly at coast out and you promised to take the ocean crossing. Kind of a Christmas present for me, remember?" insisted the competent copilot.

"Of course, you know I always try to take, er, try to share my heavy pilot responsibilities with you," emphasized C.R. as he rolled down from the top bunk. In the Field-grade Fumbler's semi-graceful movement to the left seat, however, he managed to knock Sergeant Torque's coffee from the engineer table, spilling it over the trip kit. He also tripped over the pubs bag, and landed in the middle of the pilot's center console. "Time's a wasting, Sam. Request descent to FL 270," C.R. huffed and puffed, pulling himself from the top of the radios and falling into his seat.

"Right, Boss, but you meant FL 390, didn't you?" challenged Sammy.

"Watch my lips, Sammy. *Two-seven-zero.* I think the winds are more favorable down there," added the Lothario of Airlift.

Sam, now getting quite perplexed with his Boss' creative reasoning, asked ATC for FL 270 for the crossing, coasting out on the MAC Orange 2 West routing. Following the descent to the new lower altitude, C.R. asked, "What's our ETA for 3 degrees West?"

Blinky, the navigator, having successfully completed his semi-annual overseas shopping trip, answered, "It's 02 after the hour, Sir. We're picking up a stronger headwind at this altitude."

"Nonsense, Blinky, we're merely encountering a temporarily stronger gradient that'll soon disappear," blustered C.R. as he pushed the throttles forward to maximum, trying to make 3 degrees West on the hour.

A few minutes later, the Starlifter made the point on the hour and was soon rocketing past 4 degrees West. The Rhinestone Cowboy started jumping up and down in his seat, squealing. "Look, crew, look! Out there just ahead! Tally-ho! Do you see it? Do you see it?" C.R. again pushed the throttles forward, almost to the stops, in a closure maneuver, and switched his UHF radio to 311.0.

"What is it, Boss? All I see is a KC-135 tanker ahead and below us," insisted Sammy.

"That, boys, is one of my contacts in high places. It's the one and only SACta Claus, bearing presents for our little ol' air-machine." Switching to his UHF radio, C.R. called up the tanker. "HiFi 02, how do you copy MAC

171?"

"Read you loud and clear, MAC 171, and a Merry Christmas to your crew and passengers. This is Colonel "Wild Bill" Strangelove at your service. Is that you, C.R.?"

"Roger, dodger, 10-4! MAC's Ace of Airlift is on the line. Thanks for showing up, Bill. You were always known for delivering the goods, even back in Vietnam," added the Magic Major.

"I've got a 50,000-pound offload for you, ol 'buddy, just like you requested for your high priority mission. We'll chalk it up to training, however."

"Hey, Boss, just what is our 'high priority' mission?" interrupted Sergeant Ty Downs.

C.R., looking impatiently at his loadmaster, continued, "Appreciate that, Wild Bill. And you won't let Mother MAC know about this AR, right?"

"Well, with your 'priority' mission I'm sure they already know about it, right?" Wild Bill's chuckle came across loud and clear on the UHF.

"If you won't tell, I won't," added the Master of Mendacity, grateful for the soon-to-be-passed gas. Sammy, meanwhile, requested a block altitude of FL 240 to FL 260 for the refueling which was, surprisingly for C.R., completed without damage to either the "tank" or the thirsty Starlifter.

As the SAC tanker headed north again toward Fairford in merry old England, a voice came over guard frequency, jovially exclaiming, "Ho! Ho! Ho! Merry Christmas to all, and to all a good night."

After refueling, the C-141 received clearance to climb through the NATs (there was not much traffic) to FL 390. Approaching coast-in at St. Johns, Newfoundland, C.R. requested a phone patch with Format through trusty MacDill Airways.

"Format, Format, MAC 171. Requesting to overfly, repeat, overfly our refueling stop, and proceed direct to McGuire. We have sufficient fuel to reach final destination, over." C.R. called.

There was a short moment of silence on the ground as the puzzled duty officer pulled 171's mission folder. Continuing the phone patch, he asked, "MAC 171. Format. How can you fly from Athens direct to McGuire? What are ya'll doing, making gas?"

The Master Manipulator's face turned bright red and he almost went into a spasm of laughter. "Er, not exactly, Sir. You see, we're at FL 390, and the winds are most favorable. We can make it in."

"All right, 171. It's your baby. Consider the Goose Bay stop deleted per your request. They had negative cargo and pax for you anyway."

"Roger, Format. And you have yourselves a merry little Christmas," C.R. gleefully added.

Some hours later, C.R. brought the sleek Starlifter safely to the home drome, blocking in at 0530 local.

"You were right all along, Sammy m'lad. We are home this morning for Christmas."

"Thanks to you and your friend, Colonel Strangelove. But aren't unauthorized aerial refuelings a little risky, even for you, Boss?" questioned the right-seater.

"Perhaps, Sammy, perhaps," conceded the Ace of Alibis. But even as the Starlifter was coming to a stop, an ominous, shiny-blue staff car containing a representative from 21st Air Force, pulled to a halt in front of MAC 171. After greeting the crew, Colonel Kris Kringle pulled Major Terror over to the side.

"Major Terror, we've got a report that you made an unauthorized aerial refueling off the west coast of France. Can you comment on this now or do you want legal counsel present?" fumed Colonel Kringle.

"Well, we did make a refueling, sir," Major Terror replied reaching into the hip-pocket of his custom-tailored nomex flight suit, sweat beginning to roll off his brow. He then pulled out a crumpled, ragged piece of paper from his billfold, and handed it to Colonel Kringle. "I've been saving this, sir."

C.R.'s tattered letter read as follows: "This one-time, blanket waiver authorizes Major C.R. Terror, Aviator Extraordinaire, to make any decisions necessary to move a single cargo mission to home station. Waiver number 79-43. Expires 31 December 1982. Signed: Captain Victor DeGolfo, #42, 21st Air Force Duty Officer.

Colonel Kringle looked carefully at the wrinkled waiver typed on what appeared to be *The MAC Flyer* stationary, broke out in an ever-widening smile, and with a twinkle in his eye, exclaimed, "Why, it's genuine and completely valid, Major Terror! Sorry to disturb you. Welcome back home, and a Merry Christmas and Happy Holidays to you and your crew."

"Merry Christmas to you Sir," C.R. acknowledged, wiping his ample brow and saluting. Then, Blinky, Sammy, Ty, Max, and C.R. all joined in: "And Seasons Greetings to all of you, too."

SANTA'S ANNUAL LETTER

S. Claus
#1 North Pole, 99999-0001

Supervising Editor
The MAC Flyer
Scott AFB, IL 62225-5101

Dear Sir,

Enclosed you'll find my 1990 MAC Flight Safety Writing Contest entry. As the world's oldest surviving aviator, it's time to make my yearly contribution to flight safety. Let's face it, one flight a year makes for limited flying hours but I know thousands of your readers, most of them making several flights a week, are anxious to relate their own hairy stories of narrow escapes, harrowing emergencies, and other tales. Anyone who doesn't take time to send a story should be ashamed.

But, don't worry. As in years past, I have my list and am checking it twice for all those out there who could but don't send in a story. If they want anything for Christmas, they better get busy now. Santa is watching. . . I mean it!

Happy Holidays to all,
Santa

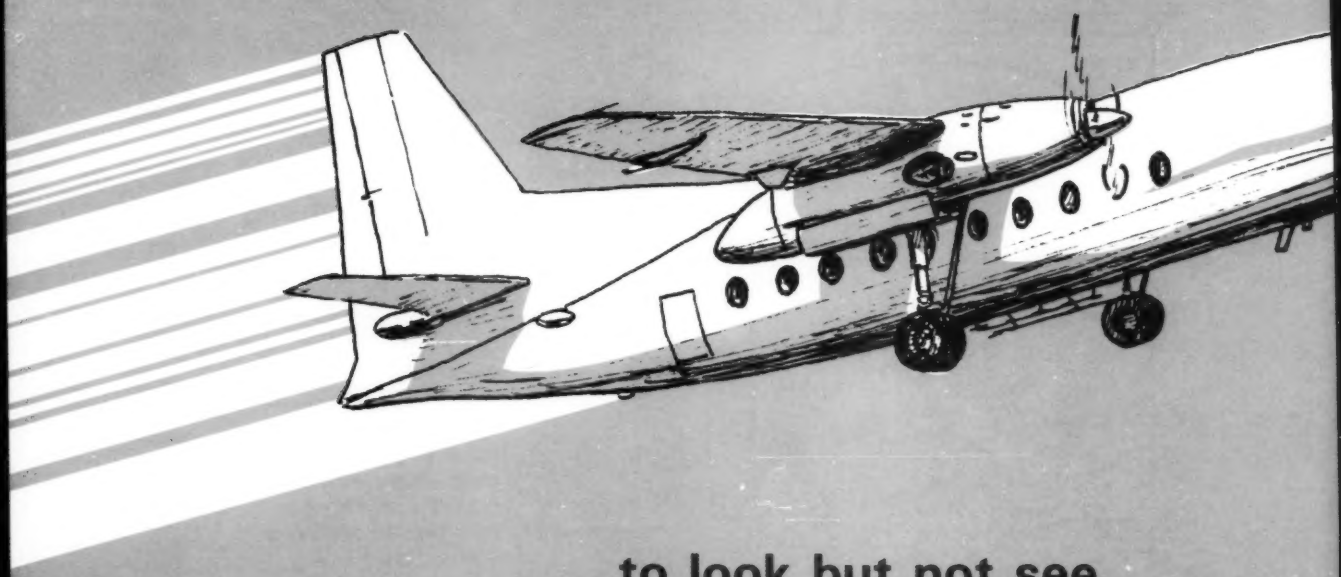
THE RULES

The 1990 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. Entries must be original, unpublished, contain an aviation safety/mishap prevention message, and be postmarked no later than 31 March 1990. Stories must be between approximately 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages). Poetry should average 75 to 100 lines. Manuscripts must be typed, double-spaced, and submitted in two copies. Identify entries by title only and attach a cover sheet indicating author's name, address, duty phone, unit and home address. Please include a brief biography.

The contest is open to all. Entries qualifying under the above rules earn their author a complimentary one-year subscription to *TMF*. However, desk sets and plaques may be awarded only to military members and civilian employees of the Department of the Air Force and Air Reserve Components. Other entries may be selected for Honorable Mention, Special Category.

Winning entries will be published in *TMF*. Submit to:

MAC Flight Safety Writing Contest, 1990
HQ MAC/IGFE
Scott AFB, Illinois 62225-5101



. . . to look but not see . . .

Icing . . . Flameout

As world travelers, we often find ourselves transiting areas with less than desirable climatic conditions. This time of year, it's down-right cold many places our wheels touch down. Icing is a problem at altitude all year round, but as the freezing level drops, our concern with ice and snow takes on a new dimension. Our familiarization with the operations and limitations of our anti-icing and deicing systems becomes primary in the struggle for self-preservation. The crew of a twin-engine turbo-prop could have saved themselves a lot of time and trouble had they heeded the warning signs.

FLIGHT HISTORY

On 13 January 1984, Pilgrim Airlines Flight 215 departed Groton-New London Airport, Conn., for John F. Kennedy (JFK) International Airport, Jamaica, New York, and arrived at 1346. Inbound to JFK, light icing conditions were encountered near Deer Park, N.Y., at an altitude of 4,000 feet MSL. The Captain stated the ice disappeared from the airplane's structure during descent as it reached 3,000 feet. Aircraft wing deicing and engine cowling deicing/anti-icing systems were not used during the inbound flight. The same flightcrew and airplane were scheduled to continue to Ottawa,

Canada, as Pilgrim Flight 35.

The surface weather observation at JFK at 1351 hrs, was: measured ceiling 2,700 feet overcast; visibility 7 miles; temperature 26 degrees Fahrenheit; dewpoint 21 degrees Fahrenheit; wind 050 degrees at 14 knots; and altimeter 30.59 inches.

The Captain completed his exterior preflight inspection of the airplane and supervised refueling. He then completed the "cockpit checklist" to engine start. He stated he observed no discrepancies during the preflight inspection and did not see ice on any part of the airplane except for a narrow strip along the entire length of the leading edges of both wings. The Captain described the ice as a white line drawn on the leading edges, one to one and one half inches wide, and less than one sixteenth inch thick. The strip did not cover the entire leading edge of any of the deicer boots. The Captain further stated, based on his experience, the amount of ice did not warrant deicing the wings before takeoff. He didn't believe the ice was hazardous to the Fokker F-27's safe performance. The engine air inlets are covered partially by the propeller nose cone. Consequently, the inside of the inlets are not visible from the ground and require a crewmember to use a ladder to inspect them properly. The Captain did not use one. As he completed the preflight inspection, the First Officer was busy supervising baggage loading, while the Flight Attendant supervised the boarding of 21 passengers. Loading and boarding were completed about 1420, and engines were started immediately to recharge the pneumatic system, which the Captain had noticed was low during taxi at Groton.

Engine start was uneventful. Flight 35 departed the gate at 1430 and was cleared to Runway 4L. Both the Captain and First Officer stated that no snow or slush was thrown back by the Boeing 727 they were following, and they did not taxi through puddles of water or slush.

The flightcrew did not use, nor did company procedures require use of a challenge and response method to complete the "Before Takeoff Checklist." The Captain said he completed the items on the checklist up to and including "Before Takeoff" items. The flightcrew stated control locks were released, control surfaces checked for freedom of movement, and fuel heat was on for more than the required two minutes "on" time. The First Officer stated she completed all "Before Takeoff Checklist" items as the airplane taxied onto the runway. She was at the controls for a right seat takeoff; the Captain was in the left seat.

At 1441:07 the local controller cleared Flight 35 into position and, at 1441:46, the flight was cleared for takeoff. Takeoff roll was normal. At 1442:00, the Captain stated, "Temps and pressures are within limits . . .," followed by the call "eighty knots" at 1442:08. At 1442:12, the Captain said, "Vee one, vee R, vee two."

The flightcrew reported rotation was normal. At 1442:19, when the airplane was 50 to 100 feet above the runway, the First Officer called for the gear to be raised. Concurrent with that call, the Captain observed the left engine autofeather light illuminate. The cockpit voice recorder transcript showed that, at 1442:19, the left engine RPM decreased concurrently with the First Officer's command, "and gear up." The Captain stated he immediately raised the landing gear. At 1442:20, he said, "Left engine, we just lost it," and at 1442:22, said, "Okay, keep her going."

The Captain stated that following the loss of left engine power, the airplane was under control and airspeed was about 110 knots. He then confirmed the left engine was not operating, and at 1442:26, stated, "Okay, let's feather the left one, power lever back." At 1442:27, the cockpit voice recorder recorded the sound of decreasing right engine rpm. The Captain noted the reference to "power lever back" was a momentary mental lapse since it was not the correct feathering procedure for the F-27 airplane. Movement of the power lever is not the first step in the feathering procedure for this aircraft. He stated, as soon as he said "power lever back," he realized the error, and made no move to pull the left power lever back.

The Captain further stated, that as he placed his hand on the

high pressure fuel cock for the left engine (the correct F-27 feather procedure), power was lost on the right engine. He said this occurred before he retarded the left engine high pressure fuel cock, and consequently, did not move the left high pressure fuel cock.

At 1442:30, the local controller transmitted, "Pilgrim thirty-five, heavy smoke coming from the number — right engine." The local controller said he saw white smoke trailing from Number 1 engine after rotation, followed by "heavier white smoke appearing behind Number 2 engine." At 1442:28, the Captain said, "Keep the (right) one going." (He later stated he actually said, "Keep the airplane going," not the right engine.) At 1442:35, the Captain transmitted they were going to land. This transmission was followed at 1442:37 by a sound similar to landing gear actuation. The Captain stated, as he reached for the landing gear handle, he saw the power levers and the right engine high pressure fuel cock "in the full forward position."

At 1442:44 the first sounds of impact were recorded; they lasted until 1442:55. The cockpit voice recorder ran until 1446, when the airplane's battery was turned off.

The airplane landed on Runway 4L with the landing gear unlocked and in transit to the down position. The airplane hit first about 6,000 feet from the threshold of the runway and 60 feet right of centerline; it then slid for about 600 feet on the runway before going off the right side and into the snow. It slid on the snow another 600 feet before stopping near the intersection of Runway 4L and taxiway G. The Captain recalled both power levers were full forward and both high pressure fuel cocks open when the airplane stopped.

The Flight Attendant, seated in the aft jumpseat of the passenger cabin, stated she could see the instrument panel in the cockpit because the door to the forward cabin was open and the curtain was pulled back. She saw a red propeller feather button light illuminated on the left side of the instrument panel, and "both pilots were trying to restart the engine." When the airplane struck the ground, she felt a severe pain in her back. As the airplane was sliding on the runway, she deliberately unfastened her seat belt, got out of her seat, and laid on the cabin floor in the aisle. She instructed the passengers on evacuation procedures as she lay incapacitated in the aisle.

After the airplane stopped, the Captain exited the aircraft through the forward cargo door and proceeded to the rear. He found the main boarding door already open, and reentered the cabin to assist the Flight Attendant. The First Officer opened the right exit window when the airplane stopped and turned off the fuel boost pumps. She recalled seeing the Captain close the high pressure fuel cocks. The Captain stated he returned to the cockpit at the request of the crash/fire/rescue crew chief and shut off all switches, put both high pressure fuel cocks in the feather position, pulled the "tee" handles for both engines, and shut off the master switch. Minor injuries were sustained by the Captain and 13 passengers during impact and as the airplane slid along the ground.

ANALYSIS

Investigation revealed the flightcrew was properly certified and qualified for the flight. There was no evidence of preexisting medical or psychological conditions affecting their performance. The airplane was properly equipped, maintained, and loaded in accordance with existing FAA regulations and company procedures. There was no evidence of maintenance discrepancies affecting the flight.

Weather conditions encountered on the inbound flight to JFK were as predicted and conducive to airframe icing; a fact confirmed by reports from pilots who encountered icing between 500 feet and 6,000 feet, and by statements from the flightcrew of Flight 35. Significantly, the flightcrew stated they had not used engine anti-ice during the inbound flight, although they did encounter icing conditions which resulted in an accumulation of ice on the plane. Pilgrim Airlines procedures state that anti-ice systems must be activated before entering icing conditions. The procedures specify a temperature of +10 degrees Celsius as the temperature below which engine antiice must be used. Since temperatures encountered by Flight 35 were always well below 10 degrees Celsius the day of the

accident, the flightcrew should have used engine anti-ice whenever icing conditions were anticipated and their failure to do so was contrary to company procedures.

Ice would not have formed on the airframe during the 45 minutes the airplane remained on the ground at JFK, since there was no precipitation. However, the continuous subfreezing temperatures would have prevented accumulated ice from melting. Consequently, any airframe or engine inlet ice must have formed before landing at JFK at 1346. The Captain recalled he did see traces of ice on wing leading edges before takeoff, but did not see ice on other parts of the airplane.

Ice could have developed in engine inlets during the inbound flight to JFK and, if undetected during preflight inspection, would have remained in the inlets as Flight 35 started the takeoff from JFK. Furthermore, one hour after the mishap, FAA and Safety Board personnel observed ice, half an inch thick, extending almost the full length of each wing leading edge. There was also a half-inch buildup of ice on the Captain's windshield wiper post after the mishap.

Evidence of ice on the wings before takeoff led the Safety Board to conclude there was also an accumulation of ice in the engine inlets, not noted during the captain's preflight inspection. It is likely the buildup of ice in the engine inlets was equal to the half inch accumulation on the wing leading edges.

The flightcrew used the engine anti-ice system as the airplane taxied for takeoff at JFK. However, the heating elements of the system were not activated until weight was removed from the landing gear. Once the airplane was off the ground, electricity was supplied to the engine deice system. Thereafter, application of heat to the inlet cowls was sufficient to melt and dislodge accumulated ice in less than 30 seconds.

The potential hazards of activating the engine anti-ice system after ice has accumulated, as discussed in the F-27 operations manual and the Rolls Royce engine manual, should have been familiar to the flightcrew. The instructions clearly warn "a possibility of flame extinction" exists shortly after the system starts operating if large pieces of ice break off and enter the engine.

PROBABLE CAUSE

In the absence of any mechanical or electrical problems causing losses of power, the facts strongly indicate left engine power loss and autofeather resulted from ingestion of ice from the engine inlet cowls. Any engine inlet cowl ice would have dislodged upon rotation through the normal operation of the engine anti-ice system. Loss of power to the left engine would have triggered an autofeather of the left propeller after low torque was sensed. There was no indication on the cockpit voice recorder of any activity by the flightcrew which would account for left engine power loss and there was no reason for the flightcrew to change power settings when the left engine shut down. As a result, the Safety Board concluded left engine power loss resulted from ingestion of ice from the engine inlet cowl. Additionally, since the right engine had been exposed to the same conditions as the left, the Safety Board concluded that ice ingestion was also the culprit on the right engine.

The Captain's visual inspection of the exterior of the airplane revealed ice on the leading edges of the wings. However, he stated, in his opinion the ice did not constitute a flight hazard. The Safety Board believed the Captain's preflight inspection of the airplane was inadequate. In the absence of precipitation, the ice had to have been on the wing at the time of his inspection. Additionally, he made no attempt to remove the ice. Use of engine anti-ice during takeoff was a company prescribed procedure, given the prevailing meteorological conditions. However, since the flightcrew had not used engine anti-ice on the inbound trip to JFK, a very thorough examination of the engine inlet cowls to insure no ice was present was needed before using the engine anti-ice system on takeoff. Consequently, the Safety Board concluded the flightcrew's failure to use engine anti-ice on the inbound flight to JFK, the Captain's failure to conduct a thorough preflight inspection, and the flightcrew's decision to use engine anti-ice on takeoff from JFK, led to power losses resulting in the mishap.

APPLICATION TO MAC

As discussed previously, we're well into the icing season. It behoves us all to be as familiar as possible with the anti-icing/de-icing systems of our particular aircraft. In large crew airplanes with redundant systems and highly trained crewmembers, we sometimes assume the system (or another crew member) will "handle it." This is not always so. Keeping our eyes open, working together as a crew, and maintaining that situational awareness are key elements of a safe operation. Deicing fluid is relatively expensive, but obviously not as expensive as replacement aircraft and non-replaceable lives. By the way, when was the last time you pilots did a really careful pre or postflight walkaround? Think about it!

Adapted from: *NTSB/AAR-84/12*

Air Rescue Service

By Maj. Stephen E. Behr
Associate Editor

WC-130s ready on the flight line at Keesler.

Approaching the flightline at McClellan AFB, Calif., I came upon a large billboard proclaiming, "Welcome to MAC Country!" This must be the place I've been searching for—Air Rescue Service (ARS). It's here that I found my hosts for this visit, the friendly folks at rescue safety—Capt. Ernest "Ernie" L. Parrott, Flight Safety Officer, and Mr. Junior R. Walden, Chief of Ground and Explosives Safety.

Captain Parrott suggested that *TMF* first review the mission briefing to get the "Big Picture" on ARS. Here is the abridged version of the briefing given by Maj. Kent C. Kjelstrom, ARS Public Affairs.

"ARS can trace its roots to 1946 when Headquarters Air Rescue Service was established at Andrews Field, Md. and assigned the primary missions of search and rescue in the United States. By 1949, ARS had grown to include units in Europe and the Pacific, and reported to Military Air Transport Service, forerunner of MAC. During the Korean war, ARS had 11 groups and 41 squadrons, and made 996 combat rescues. The mission of recovery operations of manned and unmanned space flights, and planning for evacuation of military aircraft during hurricanes were added to ARS in 1961. Air Rescue Service was redesignated Aerospace Rescue and Recovery Service in 1966, as the buildup of rescue forces began in response to the Vietnam conflict. During Vietnam, rescue folks made 4120 saves of which 2780 were combat rescues. Following the resolution of Vietnam, rescue declined but the missions of airborne weather reconnaissance and atmospheric sampling were added. In 1983, as part of the congressionally mandated buildup of special operations forces, rescue was merged with special operations to form 23 AF. During the next six years, units were reorganized and names changed, until 1 August 1989 when ARS was reactivated, reporting directly to MAC.

"Air Rescue Service is now the focal point for worldwide Air Force rescue services. ARS manages the full spectrum of the rescue field, including support for NASA's space shuttle missions, Air Force Combat Survival School, SAC missile site support, and the Air Force Rescue Coordination Center, Scott AFB. ARS units operate from 23 active duty locations around the world, spanning 18 time zones.

"Squadrons reporting directly to ARS are: 33 ARS, Kadena AB, Japan; 37 ARS, F. E. Warren AFB, Wyo.; 38 ARS, Osan AB, Korea; 41 ARS, Patrick AFB, Fla.; 53d Weather Reconnaissance Squadron (WRS), Keesler AFB, Miss.; 55 WRS, McClellan AFB, Calif.; 56 ARS, Keflavik Naval Air Station, Iceland; 71 ARS, Elmendorf AFB, Alaska; and the 1730th Pararescue Squadron, McClellan AFB, Calif. Several ANG and AFRES units support ARS operations. They are: the 815th Weather Operations Flight, Keesler AFB, Miss.; 939th Air Rescue Group (ARG), Portland, Ore.; 106 ARG, Suffolk County AP, N.Y.; 129 ARG Moffett NAS, Calif.; and the 210th Air Rescue Squadron, Kullis ANGB, Alaska.

"The active duty ARS units fly a selection of UH-1, HH-1, HH-3, and CH-3 helicopters; the two fixed wing units are equipped with WC-130s and WC-135 aircraft. (See side bar for details on which aircraft are flown by each squadron.) Reserve and guard units support ARS with their HC-130s, WC-130s, and H-3 aircraft in providing SAR and weather reconnaissance support in the United States."

After the mission briefing, Captain Parrott and I returned to

19 OCT 89
TOTAL SAVES 1974 TO DATE
AFRCC
ACTIVITY SUMMARY
SAR MSNS 181 2256 2690 200
INCIDENTS 100 1518 2147 226
ELTS 280 5073 6788 631
NEXT MSN No. 2258
SAVES 19 248 484 44

SAR missions in progress at the Air Force Rescue Coordination Center.

the ARS Safety Office to discuss the challenges faced by folks flying for ARS. Before I could start asking questions, Col. John D. Woodruff, ARS Vice Commander, stopped in the office and mentioned that, "In ARS, safety starts at the TOP." So with that, it was off to see the commander.

Air Rescue Service is commanded by Col. Eric E. Wheaton. When asked about unique safety concerns confronting ARS crews, the colonel stated, "Our rescue mission is very demanding—flying night low level operations with NVGs at 50 feet AGL to practice combat rescue takes a lot of coordinated effort. Maintenance is very important to our success; ARS crews are tasked to the edge of the flight envelope and require a finely tuned, reliable airfleet. Our maintenance folks provide just that.

"When we're required to demonstrate our skills it's generally because someone has gotten themselves into trouble; either climbing a mountain, flying in bad weather, running out of fuel, or going beyond the capability of crew or ground personnel—that's when we get called upon. Peacetime rescue is excellent preparation for our combat mission. If we train appropriately, everything remains the same except the threat of someone shooting at us. Sometimes it's hard to tell if enemy fire would be our greatest danger because the environment can be as hostile; it may be weather; it might be power limited aircraft operating in high altitude regime. I see our peacetime mission as a natural lead-in to a combat capability."

After talking with Colonel Wheaton, it was back down to the safety office to find out more. Captain Parrott, who flies UH-1s, described a "typical" rescue mission: "There really isn't a routine mission for ARS. We just had a rescue by the 38th where two H-3s and a Korean C-123 rescued some folks off a tugboat sinking in ten-foot seas, at night, off the Korean coast. During a flight into hurricane 'Hugo,' a crew from the 53d WRS spotted another tugboat breaking up; our crew contacted the Coast Guard who arranged for a ship to pick up survivors. Not too long ago, I was on a rescue where we had to maneuver our UH-1N in a narrow canyon at night to pick up an individual whose car had plunged into a creek at the side of a canyon road; the diversity of missions, that's where the challenge is. Most of our missions are flown in visual conditions since we have to see the survivors to be able to pick them up."

My next visit was with Col. Robert J. Franklin, Director of Operations for ARS. When asked about a typical day in ARS, the colonel responded by saying, "The typical day is about 30 hours, since we're spread out—units in Europe are going home about the time headquarters arrives at work and the units in the Pacific haven't gotten up yet—ARS is a streched-out operation. Operational control of units comes from the theater forces commander, rather than from here. Our units report opening of missions to our current operations folks, and if the mission involves increased risk or is complex, the CC or CV and I discuss the mission, and we decide whether or not to approve the increased risk. An increased risk mission is defined in MACR 55-54, as 'any mission which places resources in an increased accident potential position.' The key to a rescue mission is the unit commander; he has launch authority for all missions, up to entry into the increased risk phase, and they need to feel comfortable about the mission. Air Rescue Service has a great safety record for the types of missions we fly. We stress safety everyday—training or real world. We have young crews, and our H-3 and light lift aircraft are aging and require more maintenance. Safety is a must."

Following the visit with the DO, I traveled over to the 1730th to learn about the "air-ground link" of ARS. When ARS was activated, the 1730th Pararescue Squadron was moved from Eglin AFB, Fla., to McClellan AFB, Calif. I spoke to Lt. Col. Michael E. Haas, Commander, who explained the mission of the pararescueman, or "PJ." "They are highly trained aircrew members whose many tasks include: combat rescue; providing rescue teams for space shuttle launches; mountain rescue; surface operations when air superiority isn't possible; and alert force at McClellan to support SAR missions flown by Coast Guard HC-130s at McClellan. All these PJs are trained to provide life-saving emergency medical treatment, and are trained in many types of parachuting skills; their schooling takes about a year to complete. PJs are a vital part of the rescue mission."

Five Rescue Coordination Centers are a vital part of rescue operations. These ARS detachments provide liaison with all

Air Rescue Service Units

33d Air Rescue Squadron

Equipped with HH-3s, the 33 ARS provides long range search and rescue coverage for important Western Pacific air and sea routes from Kadena AB, Okinawa, Japan.

37th Air Rescue Squadron

Operating from eight locations in the United States, the folks of the 37 ARS fly UH-1Ns and HH-1Hs providing support for strategic missile sites; missile tests at the Western Test Range, and helicopters for the Air Force Survival School. Missile support missions include convoy surveillance, missile complex security, and logistics.

38th Air Rescue Squadron

Located at Osan AB, Korea; the 38 ARS uses HH-3 helicopters for combat rescue, resupply of remote radar sites, and gunnery ranges. During fiscal year 1990 the unit's HH-3Es will be replaced with MH-60G aircraft, but their call sign will remain "JOLLY GREEN."

41st Air Rescue Squadron

The 41 ARS provides range support to the Eastern Space and Missile Center using HH-3 helos. The squadron recovers space flight crews and hardware associated with DOD and NASA space programs. Crews from 41 ARS also provide search and rescue coverage for the Atlantic coast of Florida and resupply down range navigation locations in the Bahamas.

53d Weather Reconnaissance Squadron

The 53 WRS, "Hurricane Hunters," use WC-130s to collect weather data from tropical storms. Missions are flown primarily in the Gulf of Mexico, Caribbean, and Atlantic Ocean; they may be tasked to fly storms in the Pacific Ocean as far west as the dateline. Data collection during missions includes precise measurement of wind speed and direction, and pressure gradients inside storms.

55th Weather Reconnaissance Squadron

The 55 WRS, "Pole Vaulters," conduct atmospheric sampling using WC-135B aircraft. Missions flown by 55 WRS folks collect samples of nuclear residue to monitor international compliance with the Limited Test Ban Treaty of 1963. Unit aircraft are also equipped to operate the STARCAST camera system designed to photograph high speed objects in support of several strategic research and developement programs.

56th Air Rescue Squadron

The 56 ARS at Keflavik NAS, Iceland, has responsibility for combat and peacetime SAR for the Icelandic Defense zone. The unit uses HH-3s for demanding rescues far from shore in the treacherous North Atlantic seas. In addition, 56 ARS provides routine helicopter support throughout Iceland for the Icelandic Defense Forces.

71st Air Rescue Squadron

The 71 ARS at Elmendorf AFB, Alaska, uses HH-3s to provide long range combat search and rescue coverage in the vast, desolate reaches of Alaska. The unit also supports the Alaskan Air Command with range and logistical helicopter support.

1730th Pararescue Squadron

The 1730 PRS provides pararescueman support from nine locations around the world. Deployed from HC-130s or helicopters they can operate in any terrain to assist survivors.

search and rescue forces; both civil and military. Eighty percent of all search missions are actually conducted by Civil Air Patrol in CONUS. The AFRCC has responsibility of working searches while working closely with each state's office of emergency services. The AFRCC at Scott AFB also uses the international satellite search program called COPAS/SARSAT. This system of satellites, computers, and ground stations locates persons in distress using Emergency Locator Transmitters.

Perhaps one the most well known missions in ARS is weather reconnaissance conducted by the 53 WRS at Keesler AFB. The "Hurricane Hunters," as the 53d is known, generally fly tropical storms in the Gulf of Mexico, Caribbean, and Atlantic Ocean. Missions are levied by the National Hurricane Center in Florida. During "Hugo," 53 WRS crews flew many missions to fix the storm center, collect synoptic data, gather storm track data, and confirm forecaster predictions. WC-130 flights are made from 1,500 feet AGL up to 30,000 feet MSL depending on the data needed. Flying in the "eye" of severe hurricanes as they approach heavily populated areas is the most demanding; the WC-130 will remain in the center, flying at 5,000 feet until the "eye" is over the coastal area.

The least known unit in ARS might be the 55 WRS at McClellan. Now flying WC-135Bs, the 55 WRS is one of the oldest active duty Air Force units, dating back to 1944. Commanded by Lt. Col. William H. Richard, the unit's primary mission is monitoring international compliance with the Limited Test Ban Treaty of 1963. According to Lt. Col. William M. Felt, Jr., 55 WRS/DO, "Our mission is to collect nuclear debris that may escape another country's border; the source of which might be a nuclear test or nuclear accident. Much of our flying is in the arctic region, flying at 2,500 feet for hours at a time. Another mission is support of DOD research and development, and NASA shuttle tests, using a special camera system for tracking high speed objects." Colonel Richard pointed out, "Our squadron is unique in two ways: a complete maintenance complex is part of the 55 WRS. It makes coordination between ops and maintenance very easy. We also operate a formal aircrew training 'schoolhouse,' for the C-135B. We have the Air Force's only C-135B flight simulator, my instructors provide initial and refresher courses for over 400 pilots and flight engineers from 17 flying units belonging to seven major commands, the Guard and Reserves."

As Colonel Wheaton said, "Rescue is alive, well, and going to get stronger." Today, as they have done for more than 40 years, ARS is poised to answer distress calls from anyone, anywhere, anytime. As their motto says, "*These things we do that others may live.*"

TMF Instrument Quiz

When was the last time, other than an LPS, you flew a complete procedure turn?

1. En route to DELLS, you tune up the ATIS and hear that the approach in use is the ILS to Runway 18; weather is 200-½, and RVR 2400. Your ADF is inoperative; do you need it for the approach?
   a. Yes.
   b. No.

2. While checking the NOTAM hourly update prior to the leg into Madison, you see the following:
   KMSN DANE COUNTY REGIONAL
   B) WIE C) UFN E) QNNAS CH 23
   UNSERVICEABLE
   Your mission will arrive after both Tower and Approach Control close for the evening. Can you fly the procedure turn?
   a. Yes.
   b. No.

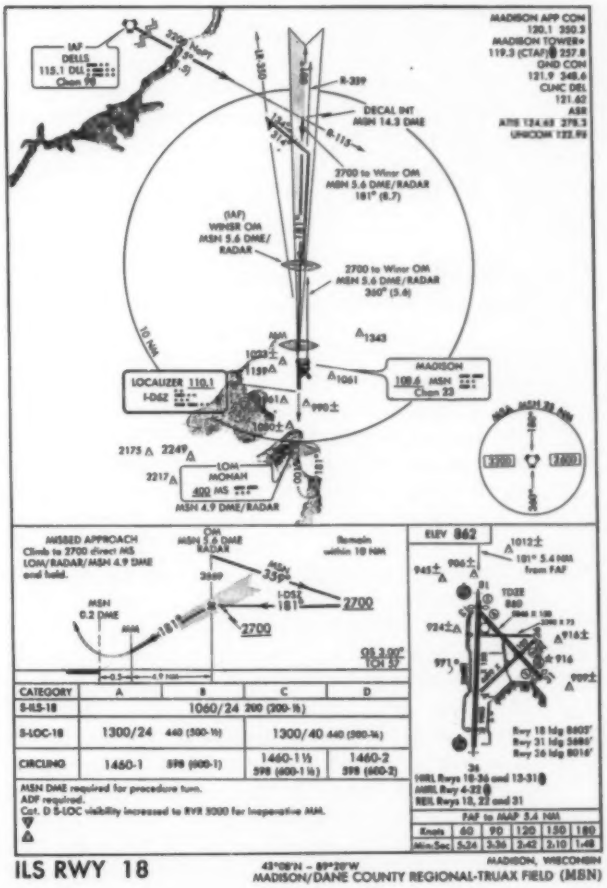
3. The routing from DELLS is labeled "NoPT." What other times would a procedure turn not be flown?
   a. When issued an ATC clearance for a "straight-in" approach.
   b. When ATC vectors the aircraft to final approach course.
   c. When conducting "timed approaches" from a holding fix.
   d. All the above.

4. The entry turn by the other pilot places the aircraft on the nonmaneuvering side of the procedure turn course. You must correct toward the procedure turn course using an intercept angle of at least 20-degrees when:
   a. Indicated airspeed is above 180 knots.
   b. Calibrated airspeed is above 180 knots.
   c. True airspeed is above 180 knots.
   d. Ground speed is above 180 knots.

5. What is the maximum speed which can be flown during a procedure turn and still ensure the aircraft will not exceed the "remain within" distance?
   a. 180 KTAS.
   b. 200 KIAS.
   c. 250 KIAS.
   d. 225 KIAS.

6. What is the minimum altitude from DELLS to DECAL to WINSR while flying on published segments?
   a. 3,300 feet to DECAL; 2,700 feet to WINSR.
   b. 3,200 feet to DECAL; 2,600 feet to WINSR.
   c. 3,200 feet to DECAL; 2,700 feet to WINSR.
   d. 3,300 feet to DECAL; 2,600 feet to WINSR.

7. You've intercepted the glideslope and have a stable rate of descent. What will your altitude be as you fly over the outer marker (FAF)?



a. 2,700 feet MSL.
b. 2,669 feet MSL.
c. 2,600 feet MSL.
d. I'm never "on" glideslope.

8. You are approaching Madison from the southeast, level at 6,000 feet. Center clears you direct to WINSR for holding, and states: "Hold northwest of WINSR, on Madison 359 radial." You should:
a. Ask for more detailed holding instructions.
b. Expect ATC to give detailed holding instructions when you are three minutes from WINSR.
c. Make right-hand turns in holding with one-minute legs.
d. Make left-hand turns in holding with one-minute legs.

9. As you approach WINSR you determine that your heading will be 290-degrees at initial holding fix passage. How will you make your entry turn into holding?
a. The holding course is not within 70-degrees of aircraft heading; turn outbound in the shorter direction to parallel the holding course.
b. The holding course is within 70-degrees of aircraft heading; turn outbound on the holding side to parallel the holding course.

10. Runway 18 has medium intensity approach lights that are pilot controlled on which frequency?
a. 122.95
b. 121.9
c. 119.3
d. 257.8

11. Are the VASIs pilot controlled for Runway 18?
a. Yes.
b. No.

12. Runway available for landing on 18 is:
a. 5,846 feet.
b. 9,005 feet.
c. 8,016 feet.
d. 8,605 feet.

13. Runway 36 has a displaced threshold. The pavement is marked with white arrows pointing to the threshold stripe. Is the section with arrows useable for taxi and takeoff?
a. Yes.
b. No.

14. What is the highest tower depicted on the approach plate?
a. 2,669 feet.
b. 2,249 feet.
c. 1,460 feet.
d. 2,217 feet.

ANSWERS

1. a. ADF is required for the missed approach procedure and stated so below the approach minima.
2. b. DME is required for the procedure turn, listed below approach minimums.
3. d. There are five instances when the procedure turn will not be flown: when cleared for a "straight-in;" when initial approach is via a no-procedure-turn required (NoPT) course; when radar vectored to final approach course; when established in a published or assigned holding pattern, subsequently cleared for approach, and the following two conditions are met: the holding course and procedure turn course are the same; and when conducting "timed approaches" from a holding fix. (AFM 51-37, para. 12-2g.)
4. c. If the entry turn places the aircraft on the nonmaneuvering side of a procedure turn course, and yo are flying in excess of 180 knots true airspeed, you mus correct back to course using an intercept angle of at leas 20 degrees. (AFM 51-37, para. 12-2b.)
5. c. A maximum speed of 250 KIAS should be observed to ensure the aircraft remains within the obstacle clearance area. Maneuvering or holding airspeed are more reasonable airspeeds to be flying. (AFM 51-37, para. 12-2b.)
6. c. The minimum altitude from DELLS to DECAL is 3,200 feet and 2,700 feet from DECAL to WINSR. The other altitudes are minimum sector altitudes.
7. b. Glidepath altitude at the FAF is shown above the FAF symbol on the vertical depiction.
8. c. ATC clearances requiring holding where holding patterns are not charted include the following: direction of holding from the fix; holding fix; radial, course, bearing, airway, or jet route on which to hold; outbound leg length in miles (if DME is to be used); and left turns if holding is nonstandard. (AFM 51-37, para. 9-4.)
9. b. The angular difference between the holding course and aircraft heading at initial holding fix passage determines the direction of turn to enter the holding pattern. 290-degrees is within 70-degrees of the holding course; turn outbound on the holding side to parallel the holding course. (AFM 51-37, para. 9-5a.)
10. c. The Common Traffic Advisory Frequency, 119.3. Pilot controlled lighting is indicated by the Ⓛ circle-L symbol following the frequency. (FLIP Terminal Approach, General Information.)
11. b. Negative symbology is used to indicate pilot controlled airport lighting. The Ⓥ circle-V indicates that VASIs at Madison are not pilot controlled.
12. d. 8,605 feet of runway is available after the displaced threshold.
13. a. True. When the paved area on the approach side of the displaced threshold can be used for taxiing and takeoff, it will be marked with a series of large white arrows. The arrows are on the centerline and point to the landing area. (AFM 51-37, para. 14-5f.)
14. b. 2,249 feet.

I'm Here to Help

Mac takes part in a unit staff assistance visit with unexpected complications.

I sure hate this part of the job, thought Capt. Brad "Mac" MacKenzie; here I am once again waiting to see a wing commander to give him a less than glowing report on the status of his flight safety office. It was the fifth and final day of a standard Numbered Air Force staff assistance visit; one travel day at each end with three days on station. As Mac waited for the "go ahead" signal from the Wing King's secretary, he thought back on the last three days and how he was going to present what he had to say in as positive a manner as possible, yet still paint an accurate picture.

Even before Mac left home, he was concerned over what he might find. He had noticed a significant drop in the quality of the mishap messages transmitted by this wing and his phone calls suggesting ways to improve the quality didn't seem to make any difference. Mac hadn't been the only one to pick up on this message problem; in the last couple of months he had received at least three calls from the MAJCOM pointing out errors that Mac already knew about. It seemed to escape some of the newer Flight Safety Officers (FSO) that their mishap messages are read all the way up the chain and a quality report isn't just a matter of filling in blocks. It takes some honest effort to find out the true cause of the mishap and come up with a reasonable way to prevent it from recurring.

Just as Mac feared, the message issue was only the tip of the iceberg and, in spite of the flight safety staff's best intentions, they just weren't getting the job done. Mac found numerous examples where they were not following regulations. The saddest part was they were trying very hard but just didn't seem able to get anywhere.

"Captain MacKenzie, the Colonel will see you now." With those words, Mac entered the wing commander's office and reported in. After shaking hands and being seated, Mac and the commander got down to the business at hand.

"Well, Captain Mackenzie, what have you got for me?"

"Sir, I'd like to start out by saying that your Ground and Explosive Safety Departments are doing very well. The team did pick up some minor problems but nothing that can't be quickly taken care of. Unfortunately, your Flight Safety Branch isn't performing on the same level. I found quite a few areas where some improvements are needed."

"Now wait a minute, Captain, I've been putting some of my best people into flight safety; I don't understand how there could be any serious problems."

"Colonel, I agree. You most certainly have been putting good people into the safety office. In fact, in a way, that may be part of our problem."

"That doesn't make any sense. Can you explain that further?"

"Yes Sir. I've checked with the folks involved and no one in the flight office has more than nine months' experience as an FSO, including the Chief of Flight Safety."

"Well Captain, I can believe that's the case, but everyone in the office has attended Flight Safety Officer School. I make sure of that before I allow the individual being replaced to leave. Normally, I try to keep people in the office no more than a year."

"Sir, I think that may be the key to solving this problem. While it's true attending the school at

Norton gives your FSOs a good foundation, it really doesn't give them everything they need to do the job well; only experience and, hopefully, the example of a seasoned FSO can do that. Your people are trying very hard but seem to be repeating basic errors over and over. The fact that no one has much experience is certainly hurting the office. In order for an FSO to do his job, he has to set up a network of contacts throughout the wing; contacts that trust him and don't see him as a 'junior Stan Eval.' When people rotate as often as they do here, it's very difficult to establish the needed ties. I'm not saying that you should pick your FSOs on the basis of popularity, but the ability to communicate is a very important part of the job; this includes everything from their casual conversations to transmitted mishap reports. The folks you have assigned to the office certainly have the skills and desire to do the job, they just don't have the experience base to know how to spend their energy effectively. Your Chief of Flight Safety is the senior officer but has the least amount of experience, which makes it very difficult for him to understand all that's required of his position."

"Well, Mac, how do you suggest I go about solving this problem? I don't have any 'experience pills' here in my desk; if I did I'd use them to season my line pilots."

"I understand perfectly what you're saying Colonel, and I agree that it takes a year to give someone a year's worth of experience. What I would like to suggest is sending your Chief of Flight Safety to another wing, where they have a top notch flight safety program. It'll give your man an opportunity to gain some first hand experience working with them. I think it would add considerably to the office 'corporate memory.' If we could follow this up with a change in policy to keep your FSOs for a longer period and, whenever possible, select your Chief of Flight Safety from among them, your people will be in a better position to get the job done."

"What you're saying makes sense and I'll certainly consider what you've suggested. Of course, when it's all said and done, the Wing Commander is the real base safety officer."

"Yes Sir, that certainly is true. Your safety office is just an extension of the Commander's program. Some people think of it as the tangible part of the unit's safety attitude, and that attitude certainly starts at the top and hopefully ends with the front line troop."

With those words, Mac knew the hardest part of what he had to say was over. The rest would just be details on the problem areas discovered with references to applicable regulations. The point had been made that just reading manuals doesn't turn a flier into a Safety Officer; understanding and implementing regulations takes an experience base to be successful. Just as Mac was about to continue with his outbrief, a phone call changed everyone's plans. The Colonel picked up his phone, listened for a few seconds and turned to Mac.

"Captain, you'll want to hear this. I'm putting my senior command post controller on the squawk box and he'll repeat what he's given me so far."

Mac knew what he was about to hear wouldn't be good news.

"A phone call changed everyone's plans."

"Sir, this is Lt. Col. Todd. I'm afraid we've had a major mishap. One of our C-130s just ran off the side of Runway 27 during landing roll. There is extensive damage to the aircraft and some injuries but I know of no fatalities. The crash net is activated and fire units are on scene. I have no additional information."

"Thanks, Colonel Todd. Make sure you get all the QRCs run and coordinate the homeline with the DO.

"Mac, I'd like you to see if you can be of some assistance in our mishap response effort."

"Yes Sir, I'll go back to the flight safety office and see what I can do."

Mac left, thankful that the unit safety office was in the same building. As he quickly moved down the hallway, he hoped the flight troops were keeping the presence of mind to follow their own mishap response plan. As Mac entered the flight safety office, he let out a sigh of relief when he found Capt. Akita, the youngest member of the safety team, on the phone with the unit mishap response plan open in front of him. As Mac made his way to the chair at the next desk, Captain Akita hung up the phone and started to speak.

"Mac, I sure am glad you're back. I'm not quite sure what I should be doing and don't want to make any mistakes."

"I'll be glad to help. Why don't you tell me what's happened so far and we'll figure out what we should do from there."

"Actually, all I've really done is write down what came over the crash net. The Chief of Flight Safety immediately headed out to the mishap site and told me to hold the fort while he was gone."

This didn't surprise Mac at all. It seems everyone's first impulse is to dash out to the mishap site when, actually, quite a bit of the initial work needs to be accomplished somewhere with good communications available—something you normally don't have in the field.

"Well, since we've got an FSO en route to the mishap, let's concentrate on what we can do here. Your Commander will want recommendations on who should be on the Interim Safety Investigation Board, and if you have all the information available on the mishap, I'm sure your checklist requires a phone call to Numbered Air Force to confirm they've been notified. Why don't I take your notes and call headquarters while you get the unit safety investigation board (SIB) member roster."

In just a few minutes, Mac had given the "heads up" call to the people back at Numbered Air Force and Captain Akita had returned with the unit SIB member roster.

"The Commander will want to establish his investigation team as soon as possible. It's up to us to go over this list of potential members and make recommendations based on mishap circumstances and the potential members' background and availability. If at all possible, we should try to use people who have been to a formal investigation school. When looking for a colonel to be the Interim Board President, it's best if we can find someone who has attended the MAC Board President Course, and we should select pilot and maintenance officers who have attended the Aircraft Mishap Investigation Course. The doctor serving on the board would have been trained during Flight Surgeon School. Next, we'll need to recommend an investigation officer; normally one of the wing FSOs. You have all been to the formal school out at Norton. Finally, we'll suggest someone to be the recorder. This member also ends up doing the behind-the-scenes work that pulls this whole thing together."

It took nearly 20 minutes for Mac and Captain Akita to come up with a list of names to forward to the Wing Commander. Most of their time was spent determining the availability of candidates.

"Now we're ready for the next step," continued Mac. "The Wing Commander will decide who actually serves on the board, so we have to get our suggestions to him at the Crisis Action Team. After he makes his choices, it will be up to us to notify the individuals and get them to a common assembly point for an initial briefing. We also have to pass the names of those who will be on the interim board to the Numbered Air Force."

It took another 40 minutes to present the list to the Wing Commander and notify his selectees. Mac knew the board members would want to get started on their individual tasks as soon as they assembled back at the Wing Safety Office, so he asked Captain Akita to arrange for two vehicles to be delivered for use by the safety investigation board. The base mishap response plan designated the old traffic safety classroom as the board's work area and Mac took a minute to ensure phones and class A lines were available. Within a few minutes, the board members started to arrive and Captain Akita quickly handed out job specific information packages which the Safety Office kept for just this situation. Each member quickly looked over the package provided, which was designed to get them started in the right direction and, most importantly, avoid a duplication of effort. Mac informed the Recorder he would be expected to arrange transportation and quarters for members of the formal board, arriving within the next 24 to 48 hours. With that done, he helped the Interim Investigating Officer with the eight-hour message. "The eight-hour is fully releasable and requires extra care in preparation," commented Mac. Next, Mac decided to call his home office and bring them up to date on the status of the aircraft which had suffered severe damage and was expected to easily exceed the dollar requirements for a class A mishap. Thankfully there were no severe injuries.

During this phone call, Mac learned the Numbered Air Force Commander had appointed him as his Commander's Representative and Captain MacKenzie could expect to be here for at least the next 30 days.

(Editor's Comments: What can we expect in next months' TMF? Will Mac be able help find out the cause of the mishap? Will he run out of clean underwear and have to buy more or do his own laundry? Will his dog forget him and not allow Mac back into the house? For answers to these and other questions please be sure to pick up next month's issue of the Air Force's best safety magazine, TMF!)

Flying With Assertiveness

Professional Cockpit Management

By James C. Hooper
Northwest Airlines

"Assertiveness" is one of the most misunderstood words in the language of cockpit resource management.

Driving down the freeway, I was trying to think of how to best illustrate what we mean when we say, "Be assertive." I observed three cars coming from the on ramp. The first car very aggressively bullied his way onto the freeway causing others to take evasive action to prevent an accident. The second car accelerated with the flow and came into the line of traffic very positively and smoothly. The driver of the third car was passive and timid. Slowing down, he looked for a big gap in traffic, backed up traffic flow behind him and irritated everyone. I suddenly realized I had the perfect illustration.

For many of us, education and training have built a set of behaviors that may or may not always be effective, especially in a conflict situation. We are often rewarded for winning and going after what we want while at the same time we're required to be polite, respectful, and deferring to those in authority. Our parents gave us these messages when we were children, and the same messages affect our lives today. These messages create a polarity in us that pulls in opposite directions. On one end, we feel the need to get our way at all costs, while the other end tells us to do whatever it takes to get along.

I mentioned three different styles in my illustration. The first is aggressive, the second assertive, and the third is passive. These are behaviors we often see in our cockpits and in everyday life. Quite often an aggressive individual is seen as being assertive while others, fearing the idea of aggression, become passive in an attempt to be socially acceptable.

An aggressive person will attempt to dominate others at all costs to get his or her own way. There is only one way, and "that's *my* way." At a minimum, others are made to feel that their positions or ideas are not worth considering. These people will humiliate, demean, or coerce in any way possible to achieve their will. In essence, they will disregard the rights of others to get their own way. The aggressive person will often feel self-righteous and possibly guilty after a confrontation.

Passive people will put their wants and thoughts secondary to others. They don't want conflict and will allow others to choose for them to avoid conflict. They will inhibit their thoughts and wishes by saying they don't really care or have an opinion, which is basically being "emotionally dishonest." They rationalize by saying, "If I appear agreeable or not pushy, in spite of my feelings, then people will like me." The result of this type of approach is the passive individual often feels anger, frustration, or resentment later.

Assertive people are in the middle ground between aggressive and passive. They base their beliefs on the fact that every individual has rights and can act on behalf of those rights. They have the right to express their ideas, to be listened to, to be taken seriously, to be treated with respect, to make mistakes, and, most of all, to be clear about their convictions. By respecting our own rights, we are more likely to act in a manner which respects the rights of others. To act in an assertive manner is to be honest, direct, and confident in one's self, creating a good feeling and respect for the other individual. Assertiveness creates a positive and productive interaction.

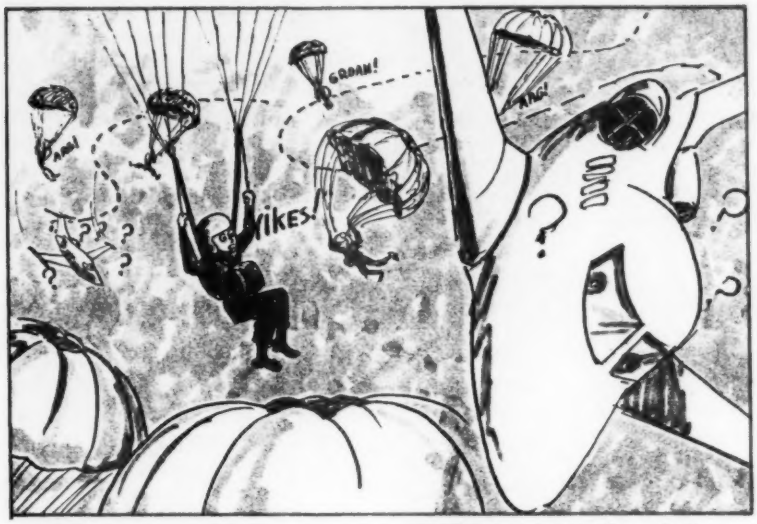
As I illustrated earlier, the aggressive driver only irritated others by his "get my way" attitude, without consideration for others. The passive driver also irritated others and endangered lives by his reluctance to act. He was waiting for someone to make a spot for him and was fearful of infringement on others. The assertive driver was confident and respectful of others, and accelerated with traffic in a positive way. The other drivers allowed him to flow onto the freeway very smoothly. His attitude caused no irritation and created no disruption, allowing the transition to happen almost unnoticed.

The same attitudes are present in our cockpits today. Aircraft commanders must address these attitudes in the cockpit. They are in command and are the leaders. For them to provide good leadership, they must encourage assertiveness. By encouraging this trait in co-workers, they create respect, discourage emotional dishonesty, and say to others, "You have the right to be heard, and you will be heard." You will then have a synergistically operating team and the benefit that comes from free communication and mutual support . . . and a good feeling of confidence in ourself and your crewmembers.

Adapted from *Northwest's "On Course."*

QUICKSTOPPERS

CELEBRATING 35 YEARS OF *TMF:* 1954 - 1989



COMING THROUGH!

(Decmber 1986)

The day's mission wasn't too complex, just your everyday high altitude parachute drop—no problem. The pilot maintained continuous radio contact with RAPCON. He informed them of the crew's intention to release human beings suspended by parachutes into the airstream surrounding the aircraft. However, he didn't give the required 5-minute warning call. The result of this omission was the release of human floaters into an active Military Air Training Zone (MATZ) (potentially unhealthy). The pilot gave tower a 1-minute warning call (1 minute prior to drop, not a call of 1 minute duration). This didn't give the controller sufficient time to coordinate MATZ closure. The controller did try to stop the jump, but his radio call was made after the jumpers were released.

The omitted 5-minute call was required, as you might guess. It was the coordinated procedure to "assure clearance to drop." The letter of agreement goes further, including a requirement to ". . . maintain contact . . . for direct coordination and safety advisories."

So what happened? Once again a lack of crew coordination took a bite out of an otherwise well-executed mission. The AC had asked the copilot to make the required call, but the copilot forgot to do so. The solution, however, is not to superglue the copilot's lips to the overhead escape hatch, he does not bear the blame alone. Nay, there was a whole crew aboard to ensure procedures were followed. Besides, the copilot wasn't playing pinochle either, he was busy coordinating for clearance to climb to jump altitude, no trivial contribution to a sucessful airdrop, *while* monitoring RAPCON, tower, and jump control. A little help could have been very useful, especially in the eyes of the jumpers, who had to bob and weave their way to terra firma.

CARGO COMPARTMENT ROUNDUP

(April 1984)

A recent HC-130 airdrop incident resulted in minor rope burns on an instructor loadmaster's neck—but the incident could have caused a serious injury or fatality. It seems the LM was receiving an annual qualification evaluation and was performing manual delivery of a simulated MA-1 kit. He had just deployed the Number 1 bundle and initiated the deployment of Number 2 when the 10-foot line broke away from the first bundle. The line then whipped back into the aircraft, wrapping itself one-half turn around the surprised loadmaster's neck.

As the bundles continued out of the aircraft, the rope tightened and pulled the loadmaster to the floor. Luckily, the flight examiner loadmaster acted quickly and cut the rope, freeing both the loadmaster and the bundles. After landing, the loadmaster was treated for minor rope burns and returned to duty.

Flying-Hour Milestones

15,000

153 TAG
SMSgt. Henry E. Schoneberg

164 TAG
SMSgt. Carl E. Cannon

167 TAG
SMSgt. Donald W. Leight

10,000

153 TAG
CMSgt. Karl E. Krieger
SMSgt. Robert L. Harrington

167 TAG
CMSgt. Gary D. Albright

7,500

41 TAS
MSgt. Jack Vance

153 TAG
SMSgt. Robert W. Williams

164 TAG
Col. Charles M. Butler
Lt. Col. Richard W. Rottgering
CMSgt. Donald L. Keller
MSgt. Hugh L. Skeen
MSgt. David A. York

337 MAS
Maj. Jay F. Lacklen
MSgt. Paul A. Couture

700 TAS
Lt. Col. Nelson D. Powell

5,000

41 TAS
Maj. Bruce W. Parks

130 TAS
Capt. Russell E. Altizer

143 TAS
Maj. Raymond F. Bourgoin
Capt. Gary A. Tougas
SMSgt. Stephen Parente

153 TAG
Lt. Col. Duane F. Mrosla
Lt. Col. Robert D. Rodekohr
Lt. Col. Miles B. Scribner
Lt. Col. Jon A. Sims
Maj. Larry S. Rodekohr
Maj. Robert A. Schmidt
Maj. Roy M. Thompson
MSgt. Wayne A. Mahan
TSgt. Robert C. Kolbo

164 TAG
Lt. Col. James H. Bassham
Lt. Col. James G. Hutto
Lt. Col. James D. Lindsey
Lt. Col. Dorsey H. McKay, Jr.
Lt. Col. Kenton N. Swanger
Maj. Randall R. Higginbotham
MSgt. Robert L. Riales

164 TAS
MSgt. Donald J. Boyd
TSgt. Merle R. Margot

167 TAG
SMSgt. Earl W. Cook

337 MAS
Lt. Col. John E. Riley, Jr.
MSgt. Bruce W. Szepelak

700 TAS
Lt. Col. Clarence M. Burch
Lt. Col. Robert L. Cuddeback
Lt. Col. Gary L. Kopp
Lt. Col. W. Roy Marsh
Lt. Col. Neil B. Moulton
Maj. Norman S. Bell
Maj. Lewis J. Miffitt

1550 FTS
Maj. Kenneth C. Halbert
MSgt. Mark E. Gottfried

2,500

17 MAS
Col. William B. Jones
Capt. Edward D. Dertien

41 MAS
TSgt. Calvin W. Rhoney, Jr.

70 AES
MSgt. Robert Fredrich

73 AES
Lt. Col. Richard A. Gill
Capt. Teryl L. Meyer

76 MAS
SMSgt. Richard T. Helton

106 ARRG
Lt. Col. Robert E. Grisnik
Lt. Col. Martin J. Ingram
Lt. Col. Kenneth Stengel
Lt. Col. Daniel M. Weiss
Maj. Salvatore A. Girofalco
Maj. Edward R. Hornung
Maj. William Jinks
Maj. Andrew E. Jost, Jr.
Maj. Kevin J. O'Donnell
Maj. Thomas J. Parks, III.
Maj. Arthur Rivolo
Maj. Philip N. Rogers
Maj. Robert J. Stack
Capt. Timothy Frye
Capt. Mark W. Rolle
SMSgt. Paul M. Bellissimo
SMSgt. Joseph W. Zieris
MSgt. Vincent Byrne
MSgt. Darrell D. Carrick
MSgt. Thomas G. Elfeterion
MSgt. Edward J. Mansfield
MSgt. Dale Stitz

130 TAS
Capt. Keith M. Jones
Capt. James K. McLaughlin
MSgt. Guy M. Garnes
TSgt. Stephen W. Holstein

143 TAS
Capt. John D. Dufort
Capt. Edward W. Johnston
Capt. Kevin B. Minnigerode
MSgt. Johnny L. Nifon

153 TAG
Maj. Eugene H. Webb
Capt. Matthew J. Trucco
Capt. Thomas F. Hamm, II.
1st Lt. Douglas A. Hoffdahl
MSgt. Webster B. Jones
MSgt. Philip A. Rosenlund
MSgt. Howard N. Joy
TSgt. Louis L. Arnold, III.
TSgt. Ralph H. Tyson

164 TAG
Lt. Col. Murry P. Gandy
Maj. Cecil H. Brunson
Maj. Robert H. Hendrix
Maj. Frank D. Tutor
Maj. Danny W. Whitt
Capt. William C. Beard
Capt. David N. Burton
Capt. Carl M. Holmes, Jr.
Capt. Jack R. Mitchell
Capt. William A. Rose
TSgt. Ronnie T. Cox
TSgt. Howell J. Pickett

164 TAS
Lt. Col. Donald L. Eby
Lt. Col. Thaddeus D. Evans
Lt. Col. Donald H. Schendel
Lt. Col. Larry R. Strimple
Lt. Col. Douglas B. Weber
Maj. James E. Ballard
Maj. John J. Corrigan, Jr.
Maj. Daniel L. Gewaswein
Maj. Robert G. Herak
Maj. Donald G. Howard
Maj. Rexford H. Marquart
Maj. Michael D. Rudd
Capt. James D. Conrad
Capt. Stephen M. Egert
Capt. Edward W. Sadler
1st Lt. Kenneth E. McCabe
SMSgt. Michael A. Cyphert
SMSgt. Tim E. Bridgeman
SMSgt. Charles R. Ritter
MSgt. Carmine Barretta
MSgt. Larry M. Brooks
MSgt. Ronald A. White
TSgt. Steven R. Hudson
TSgt. Walter W. Leitenberger
SSgt. Larry R. Mullen

167 TAG
Lt. Col. Alfred J. Steinberger
Maj. Gerald E. Brown
Maj. Patrick R. McKee
Maj. Kim W. Vanderford
Capt. Robert S. Messerli
TSgt. Raymond F. Day

172 MAG
Maj. Leonard R. Frederick
Maj. James E. Hearon
Maj. William B. Jernigan
Capt. Jorge A. Mottos
Capt. Amos A. Watkins
MSgt. Robert E. Owens
TSgt. Robert M. Dent, III.

185 TAS
Capt. Jeffrey L. Bradford
TSgt. Robert A. Sims

300 MAS
SMSgt. Virgil Flowers
MSgt. Daniel Beck
MSgt. Luverne Harmon
MSgt. Lawrence Lang
MSgt. Noien Mole
MSgt. Tommy Riggs
MSgt. Kenneth Whetsell
SSgt. Anthony Pritchard

302 TAW
Maj. Frederick W. Brown

328 TAS
Capt. Bradley B. Secton

357 TAS
Lt. Col. Henry J. Balch
Lt. Col. Harold R. Dobbs, Jr.
Lt. Col. Lee H. Richey
Lt. Col. Vernor F. Prawius
Maj. Michael G. Berg
Maj. William R. Buechner
Maj. Donald A. Cameron
Maj. James A. Coles
Maj. William H. Cope, Jr.
Maj. Robert L. Corley
Maj. Wallace S. Drago
Maj. Richard W. Gilchrist
Maj. Harold W. Griffith
Maj. Edward T. Hails, Jr.
Maj. Nicholas A. Jacobs
Maj. John W. Lundberg, III.
Maj. Robert C. Martin
Maj. Steven A. Ogburn
Maj. Richard C. Rovar, II.
Maj. John B. Traylor
Maj. William P. Woodham
Maj. Donald E. Zeigler, Jr.
Capt. Harvey E. Gay, III.
Capt. James F. Hill
Capt. George D. Nigro
Capt. Keith T. Spillman
Capt. Steven M. Stimpson
SMSgt. James B. Thompson
MSgt. Michael E. Harper
MSgt. John R. Melton
MSgt. David W. Selwyn
TSgt. John O. Ogan
TSgt. Larry C. Spencer
TSgt. Jerry W. Roland
SSgt. David G. Greer

374 TAW
Lt. Col. Randolph C. Vincent
Lt. Col. James L. White
Maj. Randall G. Johnson
Maj. Steven J. Vreeland
Capt. Dennis D. Grunstead, II.
Capt. John P. Halligan
Capt. John M. Morris
Capt. Thomas G. Thompson
MSgt. Anthony P. Galvez
MSgt. John W. Grant
TSgt. William L. Hill
TSgt. Timothy R. Johnson
TSgt. William K. MacKenn
TSgt. Robert S. Thompson
TSgt. Paul D. Vachon
TSgt. Douglas W. Gilson
SSgt. Edward B. Eubanks
SSgt. Michael R. Hutchinson
SSgt. Wayne F. Mallaber
SSgt. Michael P. Salazar

435 TAW
Maj. Hugh B. Willeford
Capt. Carl Hunter
Capt. Frederick W. Tichanuk

438 MAW/CV
Col. Edward M. Bullard

707 MAS
CMSgt. Richard Harwell
SMSgt. Dutch Binarr
MSgt. Michael Anthony
MSgt. William Corbitt
MSgt. Barron Foster
MSgt. George Gilbert
MSgt. Al LaDoucer
MSgt. William Pringle
MSgt. Melvin Vinson
MSgt. Jack Webster, Sr.
MSgt. Richard Williams
MSgt. Fred Wilson
TSgt. William Barnard
TSgt. Rita Beenken
TSgt. Darryl Brown
TSgt. Mark Crocker
TSgt. Andrew Fox
TSgt. Michael Hughey
TSgt. Robin Milner
TSgt. Robert Wilson
SSgt. Wayne Humphrey

730 MAS
TSgt. Herbert W. Burns

772 TAS
Lt. Col. Robert P. Mims
Lt. Col. Dan W. Hickox
Lt. Col. Danny J. Baird
Maj. Douglas J. Harne
Capt. Kevin P. Mazurowski
Capt. James G. Wildner
SMSgt. William A. Gilbreath
MSgt. Paul E. Klozinski
TSgt. William M. Martin
Sgt. Israel C. Hunter
Sgt. Daniel A. Smith

773 TAS
Lt. Col. William A. Bedford
Maj. Charles M. Anderson
Maj. Brain W. Baurieu
Maj. Stephen D. Brown
Maj. Christopher M. Stuhldreher
Capt. Frederick R. Cianciolo
Capt. Ronald S. Herold
Capt. Randall J. Lucks
Capt. Joseph M. Potts
Capt. Rick Velasquez
CMSgt. Alan N. Bridgestock
TSgt. Christopher G. Ulibarri
TSgt. George W. Rogers
SSgt. Wayne L. Birchler
Sgt. Brian D. Wherle

907 TAG
Maj. Robert J. Speer
Maj. Brian W. Van Vliet
Capt. Michael V. Engle
Capt. Bert W. N. Stull
Capt. Edward T. Whiteley
MSgt. Richard J. Simon
TSgt. Arnold W. Atchison
TSgt. Rodger K. Cuccio
TSgt. David W. Gross
Sgt. Alphonso R. Johnson

910 TAG
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Maj. Mark G. Perkins
Maj. Steven Polakof
Capt. Merle D. Hart
Capt. Scott P. Reichert
Capt. Richard S. Rozman
1st Lt. John D. Williams
SMSgt. Alvin J. Williams
SMSgt. Thomas Mason

907 TAG
SSgt. Randy L. Miller

911 TAG
Maj. Samuel Muscarella
TSgt. Harold Best

Det 1, 1401 MAS
Capt. Edwin D. Thornhill

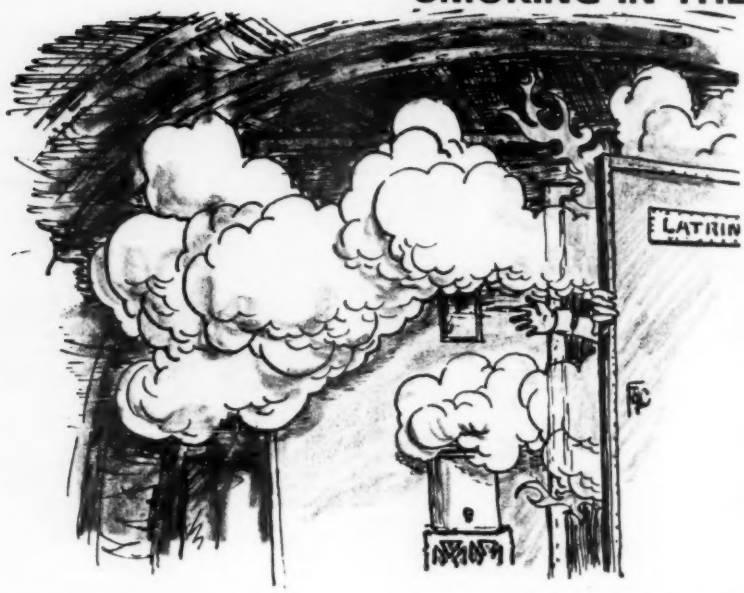
1402 MAS
Capt. Michael R. Hicks
Capt. Mark S. Zienert

1467 FCS
MSgt. Gerald R. Cole

Ranks and units are those at time of award.

QUICKSTOPPERS

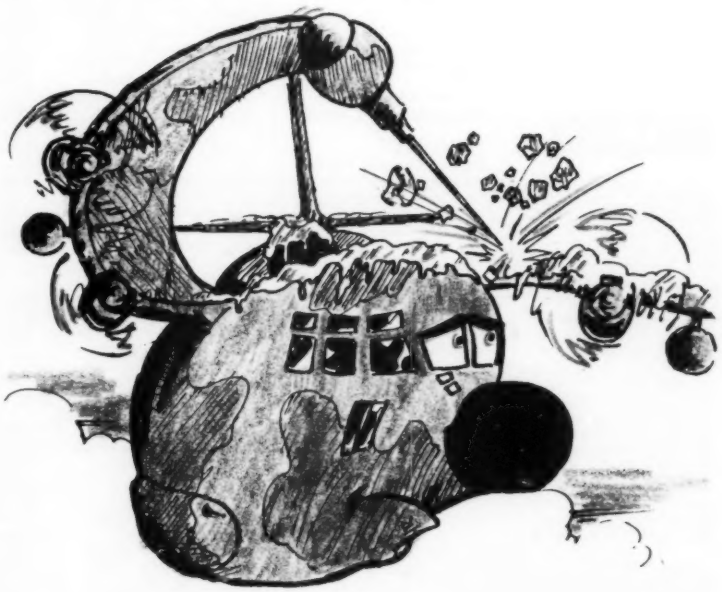
SMOKING IN THE BOY'S ROOM



During landing roll, the Starlifter loadmaster heard a loud bang and saw smoke billowing from behind a comfort pallet. The aircraft was stopped on the runway and the "fire on the ground checklist" accomplished. The smoke disappeared when power was removed from the comfort pallet. Investigation revealed the culprit—a shorted-out cannon plug connector. It seems that rather than remove the cannon plug carefully, someone had yanked on the cord, bending the prongs of the plug and loosening the wires. Bumps from a rough runway bounced the plug and wires until the plug shorted out.

ICING FORECASTS CONFIRMED

During climbout through forecast icing conditions, this Herk's automatic ice detection system failed to detect moderate icing. The nonautomatic ice detection system (the crew), failed to detect the ice as well. As fate would have it, the C-130 began to ice up, the rate of climb slowed, acceleration lagged, and flight controls were sluggish. The crew manually activated engine, prop, and wing anti-icing, about the same time the trusty loadmaster reported that Number 3 engine's tail pipe was glowing red. This finally got the pilot's attention; he declared an emergency and turned back toward home drome. Automatic ice detection systems aren't infallible. The MARK-I eyeball is still the best detector going.

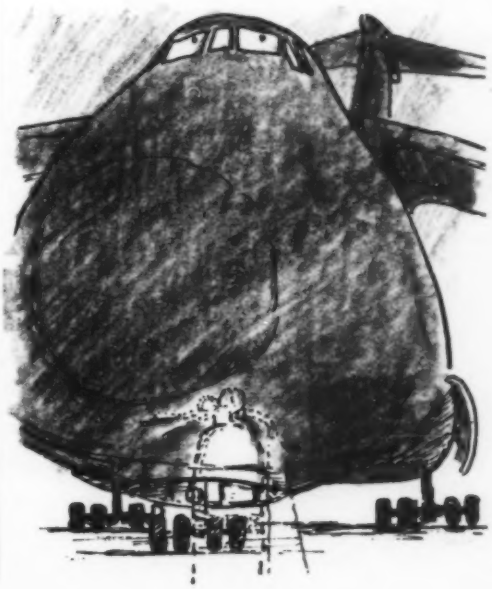


WHEN IT RAINS, IT POURS

Following three miserable hours of rain, this Starlifter headed skyward, toward home station. During taxi-out, the crew noted pools of water on the floor and water still dripping into the cockpit, but nothing else out of the ordinary. In the climb, passing 1,000 feet, the copilot's INS ATT light came on, so he selected AHRS for attitude reference. Everything was back to normal. Climbing through 3,000 feet, the Number One INS ATT light came on. The pilot reported his ADI was showing an unusual attitude, so he too selected AHRS which this time didn't correct the attitude display. Not trusting either ADI, the pilot began a climb using needle, ball, airspeed, and known climb power settings. They continued to climb until reaching VMC at FL 390. Ten minutes after level off, AHRS attitude data began to improve, and both INS ATT lights went out. Selecting INS ATT showed a correct attitude picture. After a safe landing, maintenance folks discovered a disconnected drain hose. The hose was connected at the pilot's sliding window, but a weak repair under the floor boards allowed water to drain onto and into a junction box in the avionics bay. Water from the three-hour downpour had entered the avionics bay and shorted power to the ADIs.

STEALTH FIRE BOTTLE FOILS CREW

What do you look for when you make that last check around the aircraft? It seems one crewmember was looking but didn't see a fire bottle located in front of the Galaxy's forward main landing gear. The crew chief also missed the fire bottle as he pulled the chocks. The landing gear, however, didn't miss the fire bottle—it was dragged along during the taxi, then discarded during takeoff. Sharp-eyed tower controllers noted chunks of tire on the runway after takeoff and informed the crew who, after landing at destination, were able to "see" the damaged tire. Fire bottles and other ramp dwellers love to lurk in the shadows of aircraft— you've got to look for them to "see" them.



After Deadlines

MAC CONTINUES AIRLIFT TO HURRICANE-RAVAGED AREAS. MAC aircraft and crews have completed more than 170 emergency relief missions to areas ravaged by Hurricane Hugo. The missions airlifted more than 2,300 passengers and 4,057 tons of material and supplies into the devastated areas as of 2 Oct. Eighty C-141 missions provided the bulk of airlift; while C-5 missions total 56, and 39 C-130 missions have been completed. Almost every active MAC wing participated in the emergency effort. AFRES and Guard units have shared in flying a large part of the "Total Force" load.

INSTRUMENT QUIZ QUESTIONED. Several readers pointed out that the answer to Question 7 in the October *TMF* issue was misleading. Here's the correct word according to the folks at the USAF Instrument Flight Center: "The maximum offset of a teardrop course, holding or racetrack pattern, outside FAA airspace is 30-degrees. The correct answer for Question 7 is: a. Shouldn't exceed 091 degrees. (AFM 51-37, para. A4-2d(4).)"

MAC ASSISTS IN NORTHERN CALIFORNIA EARTHQUAKE RELIEF. MAC is assisting in relief efforts following the earthquake that rocked northern California on 17 October. Since 19 Oct., three active duty, five Air Force Reserve and another four Air National Guard units have been flying relief missions, providing rescue assistance, medical specialists and relief supplies to the disaster areas spanning 100 miles along the California coast. Aircrews from Dover's 3 MAS and 709 MAS (AFRES) airlifted 86 tons of circuit breakers and components, needed to replace destroyed units at two power plants near San Francisco. At left, workers at Moffett Field NAS, Calif., offload part of one of two 500,000-volt circuit breakers delivered by a C-5 Galaxy from 436 MAW, Dover AFB, Del., 24 Oct. The equipment, provided by the Tennessee Valley Authority, gave permanent electrical power restoration to more than a million people. (USAF photo by Robin Coventry)

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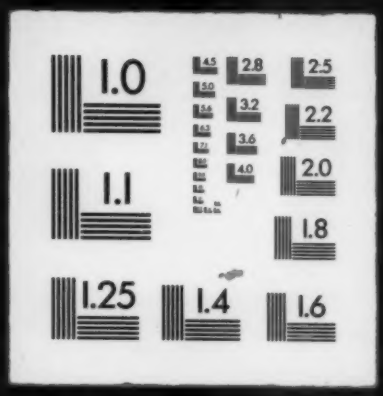
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